4½. Ventral profile not much more convex then dorsal. Snout equal to or a little shorter than diameter of eye, which is 3 to 3¼ in length of head. Maxillary tapering posteriorly, extending to below posterior border of eye; lower jaw moderately projecting. Ridges on head converge a little posteriorly. 16–17 gill-rakers on lower part of anterior arch. Ventral scutes 16+9–10. Dorsal 14–15; origin equidistant from base of caudal and occiput. Anal 40–42; origin just in front of that of dorsal; length of base nearly 3 in length of body. Pectorals shorter than head. Pelvics shorter than eye; inserted much nearer to base of pectoral than origin of anal. A silvery lateral band.

West Indies.

Five specimens, 80–90 mm. in total length; types of the species.

Pellona bleekeriana, Poey ('Répertorio,' ii. 1867, p. 242), may not be distinct from *Ch. tæniatus*. As described, it seems to differ chiefly in having a single canine above and two below on each side; no teeth on tongue; anal placed behind dorsal.

II.—*Notes on Dragonflies from the Old World Islands of San Thomé, Rodriguez, Cocos-Keeling, and Loo Choo.* By HERBERT CAMPION.

SMALL collections of dragonflies from the tropical islands of San Thomé, Rodriguez, and Cocos-Keeling, and the subtropical archipelago of Loo Choo, have recently come to my notice, and, in view of the infrequency with which those localities are referred to in the literature of the Odonata, some remarks on the collections in question appear to be called for.

SAN THOMÉ.

Through the kindness of Dr. Guy A. K. Marshall, C.M.G., I have had the opportunity of examining a few Odonata from this Portuguese West-African possession, submitted to the Imperial Bureau of Entomology by Mr. A. F. de Seabra in 1921 and Mr. H. J. Snell in 1922. Mr. Seabra sent only a female of *Ceriagrion glabrum*, Burm., and a female of *Hemianax ephippiger*, Burm. Mr. Snell's specimens, dated

1919–1921, consisted of six species, particulars of which are subjoined :—

Ceriagrion glabrum, Burm., 2 ♂, 1 ♀.
Orthetrum stemmale capense, Calv., 1 ♂, 1 ♀.
O. guineense, Ris, 1 ♀.
Diplacodes lefebvrei, Ramb., 2 ♂.
Palpopleura lucia, Drury, 5 ♂, 3 ♀.
Pantala flavescens, Fabr., 2 ♂.

RODRIGUEZ.

According to Mr. Frederick Smith (Phil. Trans. R. Soc. clxviii., extra volume, p. 539, 1879), Mr. George Gulliver, who was attached to the Transit of Venus Expedition which visited Rodriguez in 1874, brought home some Odonata belonging to the three species, *Libellula mauritiana*, Ramb. (=*Tramea limbata*, Desj., *b*), *Anax mauritianus*, Ramb. (=*Anax imperator mauricianus*, Ramb.), and *Agrion ferrugineum*, Ramb. (=*Ceriagrion glabrum*, Burm.). I am unable, however, to trace in the British Museum the single specimen of *C. glabrum* referred to by Smith under the name of *Agrion ferrugineum*, although I have found a male of *Ischnura senegalensis*, Ramb., which he did not record.

In 1918 (August to November) Mr. H. P. Thomasset and Mr. H. J. Snell collected a few more dragonflies in Rodriguez, which were identified by Mr. W. H. T. Tams as *Pantala flavescens*, Fabr., *Tramea limbata*, Desj., *Orthetrum brachiale*, Beauv., *Anax imperator mauricianus*, Ramb., *Ischnura senegalensis*, Ramb., and *Agrion ferrugineum*, Ramb. (Proc. Cambridge Phil. Soc. xix. p. 289, 1920). These specimens have passed into the possession of the University Museum of Zoology, Cambridge, and Dr. Hugh Scott has been good enough to allow me to examine them.

The only rectifications which are needed in Mr. Tams's identifications concern what he calls *Agrion ferrugineum*, a name which should now be deleted from his list. The majority of the insects to which he has applied it prove to be examples of the orange stage of the heterochromatic female of *Ischnura senegalensis*. The series also includes a single female, in somewhat teneral condition, of a species of *Argiocnemis* which is not known to me, and which is smaller than the widely-distributed *A. rubescens*, Selys, and otherwise different from it. The Rodriguez males of *I. senegalensis* exhibit a peculiarity in the coloration of the meso-metathorax, as most of them have the pale antehumeral lines entirely obsolete. Three have the antehumeral lines in successive stages of reduction, due to the progressive cutting off of their posterior portion. Thus, in the first specimen the lines are about three-quarters of their full length, in another little more than half, while in the third individual they are represented by mere vestiges on the anterior portion of the meso-metathorax. The twenty-three specimens of *I. senegalensis* contained in the collection may be analysed thus :—

Males :—	
Pale antehumeral lines complete	1.
Pale antehumeral lines reduced	3.
Pale antehumeral lines obsolete	8.
Females :—	
Homœochromatic	1.
Heterochromatic.	
Orange stage	7.
Olivaceous stage	3.

The single female of *Tramea limbata* in the collection agrees very well in its wing-markings with the female obtained from the same island by Gulliver.

As regards *Orthetrum brachiale*, of which there are two males and a female, it may be observed that the species has been recorded from Mauritius, but not otherwise from Rodriguez. One of the males is teneral, but the other specimens agree with it in having the anal appendages quite white. I have seen a long series of this species from various parts of Continental Africa, and found that the anal appendages, in males and females alike, are usually black. Ris, however, describes the appendages of both sexes as being normally bright yellow, while in very adult examples only are they dark and pruinose (Coll. Selys, Libell. p. 200, 1909). The hamules of the two males, and especially those of the fully matured specimen, are very similar to what Ris has figured from a Nossi Bé example (*loc. cit.* fig. 140).

COCOS-KEELING.

The dragonflies collected in April and May 1906 by Dr. F. Wood Jones are of unusual interest, inasmuch as "none of these species is resident on the atoll, and there is no open fresh water for them to pass their early stages in. All are wind-borne waifs, and do not belong properly to the fauna of the islands, although they are at times so conspicuous a feature of it" (Wood Jones, Proc. Zool. Soc. Lond. 1909, p. 155). The specimens were presented to the British Museum (Natural History), and were identified by Mr. W. F. Kirby as belonging to *Pantala flavescens*, Fabr., *Tramea rosenbergii*, Brauer, and *Anax guttatus*, Burm. According to Ris's monograph of the Libellulinæ, the single male *Tramea* should be referred to as *T. limbata*, Desj., *d.* The wing-markings are identical with those of males from Lombok with which I have compared them.

Next to the fact that these dragonflies were casual visitors to a coral atoll several hundred miles away from the nearest mainland, the chief point of interest about them is the discovery that what Kirby called *Anax guttatus* is really *Anax* (*Hemianax*) *papuensis*, Burm., a species of which no undoubted records exist outside the limits of the Australian continent. As extending the known distribution of this insect in the opposite direction, it may be mentioned that the British Museum series includes a male presented by Mr. W. Wykeham Perry, of H.M.S. 'Pearl,' and taken 60 miles off Lord Howe's Island on 15th September, 1874, when a strong wind was blowing off the island. It may be added that M. René Martin has recorded *Anax papuensis* from New Guinea, on the authority of a single male specimen in De Selys's collection (Coll. Selys, Æsch. p. 29, 1908). M. G. Severin, however, has been kind enough to inform me (*in litt.*, 28. vi. 22) that the collection in question contains no such specimen from New Guinea. There are two examples labelled New Holland, and it is probable that one of those labels was misread by Martin as referring to New Guinea. Burmeister's type also came from New Holland, and the specific name *papuensis* was evidently a misnomer from the first.

Loo Choo.

Scattered through the National Collection are a few Odonata obtained by Capt. F. W. Beechey during the voyage of H.M.S. 'Blossom' to the Pacific and Behring's Straits in 1825–28. Some of these specimens are provided with an oblong label inscribed "Loo Choo" and a round ticket bearing simply Capt. Beechey's name, while other specimens carry nothing beyond a round ticket marked "Sandw. I., *Beechey*." The so-called Sandwich Islands material furnished the specimen which became the type of *Deielia fasciata*, Kirby, an insect which, as McLachlan pointed out (Ann. & Mag. Nat. Hist. (6) x. p. 177, 1892), is nothing else than the heterochromatic ♀ of *D. phaon*, Selys, from Japan, Amoy, and Loo Choo. He added that "the 'Blossom' visited the latter islands [Loo Choo], and it is not at all improbable that some confusion in the locality labels subsequently occurred," especially as no "recent investigator of the Hawaiian Islands has noticed this conspicuous insect." With the exception of *Diplacodes bipunctata*, Brauer, and *Trithemis annulata*, Beauv., the other dragonflies labelled in the same way also belong to well-known Asiatic species, and *Pantala flavescens* is the only one among them known to be a Hawaiian insect.

The Beechey dragonflies which I have so far succeeded in tracing in the British Museum are the following:—

Labelled as coming from "Loo Choo"—
Ischnura aurora, Brauer, 1 ♂.
Diplacodes bipunctata Brauer, 1 ♀, evidently belonging to this species.
Crocothemis servilia, Drury, 1 ♂.
Pantala flavescens, Fabr., 1 ♀.

Labelled as coming from the "Sandwich Islands"—
Orthetrum albistylum speciosum, Uhler, 1 ♂.
Diplacodes bipunctata, Brauer, 2 ♀.
Deielia phaon, Selys, 1 ♀.
Trithemis festiva, Ramb., 1 ♀.
? *T. annulata*, Beauv., 2 ♂.
Tholymis tillarga, Fabr., 1 ♂.
Pantala flavescens, Fabr., 3 ♂, 4 ♀.

The female *Trithemis* has the right hind wing in a teratological condition. A similar female, but presumably with normal wings, labelled in a similar way, passed from the British Museum into De Selys's collection, where it received the manuscript name of *Trithemis nereis*. Both specimens were carefully studied by Ris, who, suspecting that they really came from Loo Choo, with *Deielia phaon*, referred them, provisionally, to the Asiatic species *Trithemis festiva*. He also pointed out that *T. festiva* was known to occur as near to Loo Choo as Formosa (Coll. Selys, Libell. p. 799, 1912). The identification of the British Museum specimen as *T. festiva* is probably correct, in spite of the large pterostigma and of the fact that the tips of the three normal wings are hyaline, and not clouded with brown, as appears to be usual in females of that species.

The two broken males, labelled "Sandw. I., *Beechey*," are in the form of the hamule and the redness of the venation more like *T. annulata* than *T. festiva*. In all four hind wings Cu_1 has migrated upwards upon the outer face of the triangle, reminding one of the genus *Diplacodes*, although the other characters are those of true *Trithemis*. The unusual condition of Cu_1, it may be remarked, is exhibited also by the female *Trithemis* discussed by Ris.

A perusal of Capt. Beechey's 'Narrative,' published in two volumes in 1831, reveals the fact that Teneriffe was the only place where a landing was made during the voyage of the 'Blossom' at which *Trithemis annulata* was at all likely to have been met with. Dr. B. P. Uvarov informs me that he has found a few Orthoptera of Beechey's in the British Museum purporting to come from the Sandwich Islands, which obviously had their origin in some locality like Madeira or the Canary Islands. If my determination of the two fragmentary males of *Trithemis* should be correct, it follows with a reasonable degree of certainty that they were obtained at Teneriffe in June 1825, although I have no positive record before me of the occurrence of *T. annulata* in that island.

Although the Sandwich Islands were visited by Beechey in May 1826, it cannot be taken as certain that any of the dragonflies alleged to come from that archipelago actually did so. Nevertheless, it is quite likely that the series of *Pantala flavescens* may be correctly labelled, as the species is well known in the Hawaiian Islands. It is also possible that the specimens of *Diplacodes bipunctata* likewise came from Hawaii, notwithstanding the lack of other records to show that the species occurs there (see Ris, Coll. Selys, Libell. p. 471, 1911, where the 'Blossom' material is cited). The Asiatic species were, in all probability, gathered at Loo Choo in May 1827, while the putative specimens of *Trithemis annulata* were secured at Teneriffe early in the outward voyage.

In 1915 Mr. K. Oguma published "A List of Dragonflies collected by Mr Okumura from Kiushiu and Loo Choo" (Ent. Mag., Japan, i. pp. 146–148). The text of this paper is in Japanese, and Mr. S. Yamada, of the Imperial University, Tokio, has kindly assisted me to separate the Loo Choo records from the others. The names of fifteen species occurring in Loo Choo have been obtained in this way, namely:—*Orthetrum triangulare melania*, Selys, *O. sabina*, Drury, *O. albistylum speciosum*, Uhler, *Crocothemis servilia*, Drury, *Rhyothemis variegata imperatrix*, Selys, *Pantala flavescens*, Fabr., *Diplacodes trivialis*, Ramb., *Tramea chinensis*, De Geer, *Deielia phaon brevistigma*, Oguma, *Gynacantha rosenbergii*, Brauer, *Anax guttatus*, Burm., *A. parthenope*, Selys, *Ictinus fallax*, Selys, *Gomphus* sp., and *Matrona nigripectus*, Selys. It will be observed that Mr. Oguma's list does not include all of the species in the 'Blossom' collection which I have provisionally attributed to Loo Choo.